Listing of Claims

1. (currently amended) An isolated bacterial strain~~,~~ selected from the group consisting of *Pseudomonas fluorescens* Biotype B E34, *Pseudomonas fluorescens* Biotype C WH19, *Pseudomonas fluorescens* Biotype C WH6, *Pseudomonas putida* Biotype B AH4, and *Pseudomonas putida* Biotype B AD31, wherein the bacterial strain inhibits or arrests grassy weed germination.

2. – 5. (canceled)

6. (currently amended) A Germination-Arrest Factor, wherein the factor is produced by the isolated bacterial strain of claim 1, ~~*Pseudomonas fluorescens* Biotype B E34, *Pseudomonas fluorescens* Biotype C WH19, *Pseudomonas fluorescens* C Biotype WH6, *Pseudomonas putida* Biotype B AH4, or *Pseudomonas putida* Biotype B AD31~~, wherein the Germination-Arrest Factor inhibits or arrests grassy weed germination.

7. (currently amended) The Germination-Arrest Factor of claim 6, wherein the grassy weed is *Poa annua* (annual bluegrass), *Poa trivialis* (roughstalk bluegrass), ~~or~~ *Bromus tectorum* (downy brome), crabgrass, goosegrass, dallisgrass, bahiagrass, jointed goatgrass, rattail fescue, perennial ryegrass, or tall fescue.

8. (canceled)

9. (currently amended) The Germination-Arrest Factor of claim 6, wherein the Germination-Arrest Factor (a) is a hydrophilic molecule, (b) has a molecular weight less than 3,000 daltons,(c) reacts with ninhydrin, (d) comprises an ionizable group, or (e) a combination of two or more of (a), (b), (c), and (d).

10. – 12. (canceled)

13. (original) An isolated nucleic acid as set forth in:

(a) SEQ ID NO: 2;

(b) SEQ ID NO: 7;

(c) SEQ ID NO: 10; or

(d) sequences having at least 90% sequence identity to (a), (b), or (c);

wherein the nucleic acid encodes a Germination-Arrest Factor or a protein involved in the synthesis and or secretion of a Germination-Arrest Factor.

14. (currently amended) An isolated Germination-Arrest Factor protein encoded by the nucleic acid of claim 13 and comprising an amino acid sequence as set forth in:

(a) SEQ ID NO: 3;

(b) SEQ ID NO: 4;

(c) SEQ ID NO: 8;

(d) SEQ ID NO: 11;

(e) SEQ ID NO: 12;

(f) SEQ ID NO: 13;

(g) sequences having at least 90% sequence identity to (a), (b), (c), (d), (e), or (f); or

(h) conservative variants of (a), (b), (c), (d), (e), or (f);

wherein the Germination-Arrest Factor protein inhibits or arrests germination in grassy weeds or is involved in the synthesis or secretion of a Germination Arrest Factor.

15. (currently amended) The Germination-Arrest Factor protein of claim 14, wherein the grassy weed is *Poa annua* (annual bluegrass), *Poa trivialis* (roughstalk bluegrass), ~~or~~ *Bromus tectorum* (downy brome), crabgrass, goosegrass, dallisgrass, bahiagrass, jointed goatgrass, rattail fescue, perennial ryegrass, or tall fescue.

16. – 21. (canceled)

22. (currently amended) A method of inhibiting or arresting weed germination in a growth medium in which it would be desirable to inhibit or arrest grassy weed germination, or of inhibiting or arresting weed germination in grass seed, the method comprising applying a sample of the isolated bacterial strain of claim 1~~*Pseudomonas fluorescens* Biotype B E34, *Pseudomonas*~~

~~*fluorescens* Biotype C WH19, *Pseudomonas fluorescens* C Biotype WH6, *Pseudomonas putida* Biotype B AH4, or *Pseudomonas putida* Biotype B AD31, or mixtures thereof~~ or the Germination-Arrest Factor of claim 6,- to the growth medium or to the grass seed in an amount sufficient to inhibit or arrest grassy weed germination.

23. (canceled)

24. (currently amended) The method of claim ~~23 23~~22, wherein the sample or Germination-Arrest Factor is applied in a formulation that also comprises a surfactant, a stabilizer, a buffer, a preservative, an antioxidant, an extender, a solvent, an emulsifier, an invert emulsifier, a spreader, a sticker, a penetrant, a foaming agent, an anti-foaming agent, a thickener, a safener, a compatibility agent, a crop oil concentrate, a viscosity regulator, a binder, a tacker, a drift control agent, a fertilizer, an antibiotic, a fungicide, a nematicide, or a pesticide.

25. (currently amended) The method of claim ~~23~~ 22, wherein the sample or Germination-Arrest Factor is applied in a formulation that is a solution, a soluble powder, an emulsifiable concentrate, a wettable powder, a liquid flowable, a dry flowable, a water-dispersible granule, a granule, or a pellet.

26. – 29. (canceled)

30. (original) A composition for inhibiting or arresting the germination of grassy weeds, comprising:

the Germination-Arrest Factor of claim 6; and

a timed- or temperature-release coating over at least a portion of the Germination-Arrest Factor.

31. (original) The composition of claim 30, further comprising a water-resistant coating over the timed-or temperature-release coating.

32. (original) A method of inhibiting or arresting weed germination in an area in which inhibiting or arresting weed germination is desirable, comprising:

broadcasting an herbicidally effective amount of the Germination-Arrest Factor of claim 6 at least once a year across the area, thereby inhibiting or arresting weed germination in the area.

33. (original) The method of claim 32, wherein the area is a grass patch, an agricultural field, a natural landscape, or a road-side.

34. (original) The method of claim 32, wherein the Germination-Arrest Factor is applied in a formulation that also comprises a surfactant, a stabilizer, a buffer, a preservative, an antioxidant, an extender, a solvent, an emulsifier, an invert emulsifier, a spreader, a sticker, a penetrant, a foaming agent, an anti-foaming agent, a thickener, a safener, a compatibility agent, a crop oil concentrate, a viscosity regulator, a binder, a tacker, a drift control agent, a fertilizer, an antibiotic, a fungicide, a nematicide, or a pesticide.

35. (original) The method of claim 32, wherein the Germination-Arrest Factor is applied in a formulation that is a solution, a soluble powder, an emulsifiable concentrate, a wettable powder, a liquid flowable, a dry flowable, a water-dispersible granule, a granule, or a pellet.

36. (original) The method of claim 35, wherein the Germination-Arrest Factor is formulated as a granule.

37. (original) The method of claim 36, wherein the granule is at least partially coated with a timed-or temperature-release coating.

38. (original) The method of claim 37, wherein the timed-or temperature-release coating is coated with a water-resistant coating.

39. (original) The method of claim 32, wherein the method is a method of inhibiting grassy weeds among dicot species.

40. (currently amended) A method of producing the Germination-Arrest Factor of claim 6 comprising:

culturing *Pseudomonas fluorescens* Biotype B E34, *Pseudomonas fluorescens* Biotype C WH19, *Pseudomonas fluorescens* C Biotype WH6, *Pseudomonas putida* Biotype B AH4, *Pseudomonas putida* Biotype B AD31, or a combination thereof in a suitable culture medium;

collecting the culture medium; and

purifying the culture medium to produce the Germination-Arrest Factor.

41. – 44. (canceled)

45. (original) A kit for inhibiting or arresting grassy weed growth, comprising:

the Germination-Arrest Factor of claim 6; and

a container.

46. – 47. (canceled)

48. (currently amended) A method of using the Germination-Arrest Factor of claim 6 to investigate regulation of seed germination and seedling development comprising using Germination-Arrest Factor to probe for regulatory sites in plant cells and regulatory mechanisms controlling seed germination and development.

49. (currently amended) A *Pseudomonas fluorescens* or *Pseudomonas putida* bacterial strain having the GAF-producing characteristics of *Pseudomonas fluorescens* Biotype B E34 (deposited as NRRL # B-30481), *Pseudomonas fluorescens* Biotype C WH19 (deposited as NRRL # B-30484), *Pseudomonas fluorescens* C Biotype WH6 (deposited as NRRL # B-30485), *Pseudomonas putida* Biotype B AH4 (deposited as NRRL # B-30482), or *Pseudomonas putida* Biotype B AD31 (deposited as NRRL # B-30483).

50. (original) A Germination-Arrest Factor produced by the bacterial strain of claim 49, wherein Germination-Arrest Factor is a hydrophilic molecule, has a molecular weight less than 3,000 daltons, reacts with ninhydrin, and comprises an ionizable group.

51. – 52 (canceled)